STN SEARCH:

```
=> file reg
=> s guanosine monophosphate reductase/cn

L2          1 GUANOSINE MONOPHOSPHATE REDUCTASE/CN

=> d


L2   ANSWER 1 OF 1  REGISTRY  COPYRIGHT 1998 ACS
RN   9029-32-7  REGISTRY
CN   Reductase, guanylate (9CI)  (CA INDEX NAME)
OTHER NAMES:
CN   E.C. 1.6.6.8
CN   GMP reductase
CN   Guanosine 5'-monophosphate reductase
CN   Guanosine 5'-phosphate reductase
CN   Guanosine monophosphate reductase
CN   Guanylate reductase
MF   Unspecified
CI   MAN
LC   STN Files:   AGRICOLA, ANABSTR, BIOSIS, CA, CAPLUS, EMBASE, TOXLIT

*** STRUCTURE DIAGRAM IS NOT AVAILABLE
              48 REFERENCES IN FILE CA (1967 TO DATE)
              48 REFERENCES IN FILE CAPLUS (1967 TO DATE)

=> file medline,caplus,scisearch,lifesci,biosis,embase,wpids,cancerlit
=> s gmp reductase or E.c. 1.6.6.8 or ec 1.6.6.8 or guanosine(3w)reductase

L3         288 GMP REDUCTASE OR E.C. 1.6.6.8 OR EC 1.6.6.8 OR GUANOSINE(3
               W) REDUCTASE

=> s l3 and human

L5          88 L3 AND HUMAN

=> dup rem l5

PROCESSING COMPLETED FOR L5
L6          35 DUP REM L5 (53 DUPLICATES REMOVED)

=> d 1-35 ibib abs


L6   ANSWER 1 OF 35  CAPLUS  COPYRIGHT 1998 ACS
ACCESSION NUMBER:        1998:352619  CAPLUS
TITLE:                   Guanosine monophosphate
                         reductase
INVENTOR(S):             Hillman, Jennifer L.
PATENT ASSIGNEE(S):      Incyte Pharmaceuticals, Inc., USA
SOURCE:                  U.S., 31 pp.
                         CODEN: USXXAM

                         NUMBER                  DATE
                         --------------          ------
PATENT INFORMATION:      US 5756332 A            980526
APPLICATION INFORMATION: US 96-774169            961226
DOCUMENT TYPE:           Patent
LANGUAGE:                English
AB   The present invention provides a human guanosine
     monophosphate reductase (HGMPR) and polynucleotides which
     identify and encode HGMPR. The invention also provides genetically
     engineered expression vectors and host cells comprising the nucleic
     acid sequences encoding HGMPR and a method for producing HGMPR. The
     invention also provides for agonists, antibodies, or antagonists
     specifically binding HGMPR, and their use, in the prevention and
     treatment of diseases assocd. with expression of HGMPR. Addnl., the
     invention provides for the use of antisense mols. to polynucleotides
     encoding HGMPR for the treatment of diseases assocd. with the
     expression of HGMPR. The invention also provides diagnostic assays
     which utilize the polynucleotide, or fragments or the complement
     thereof, and antibodies specifically binding HGMPR.
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L6 ANSWER 2 OF 35 BIOSIS COPYRIGHT 1998 BIOSIS
ACCESSION NUMBER: 97:495152 BIOSIS
DOCUMENT NUMBER: 99794355
TITLE: Differential inhibition of DNA synthesis in **human** T cells by the cigarette tar components hydroquinone and catechol.
AUTHOR(S): Li Q; Aubrey M T; Christian T; Freed B M
CORPORATE SOURCE: Clin. Immunol. and Histocompatibility Lab., Univ. Colo. Health Sci. Cent., Sch. Med. B164, Denver, CO 80262, USA
SOURCE: Fundamental and Applied Toxicology 38 (2). 1997. 158-165. ISSN: 0272-0590
LANGUAGE: English

AB Hydroquinone (HQ), catechol, and phenol exist in microgram quantities in cigarette tar and represent the predominant form of **human** exposure to benzene. Exposure of **human** T lymphoblasts (HTL) in vitro to 50 mu-M HQ or 50 mu-M catechol decreased IL-2-dependent DNA synthesis and cell proliferation by gt 90% with no effect on cell viability. Phenol had no effect on HTL proliferation at concentrations up to 1 mM. The addition of HQ or catechol to proliferating HTL blocked 3H-TdR uptake by gt 90% within 2 hr without significantly affecting 3H-UR uptake, suggesting that both compounds inhibit a rate-limiting step in DNA synthesis. However, the effects of HQ and catechol appear to involve different mechanisms. Ferric chloride (FeCl-3) reversed the inhibitory effect of catechol, but not HQ, corresponding with the known ability of catechol to chelate iron. HQ, but not catechol, caused a decrease in transferrin receptor (TfR, CD71) expression, comparable to the level observed in IL-2-starved cells. HQ also inhibited DNA synthesis in cultures of transformed Jurkat T lymphocytes, primary and transformed fibroblasts, and mink lung epithelial cells, indicating that its antiproliferative effect was not restricted to IL-2 mediated proliferation. However, DNA synthesis by primary lymphocytes was more sensitive to HQ (IC-50 = 6 mu-M) than that of the transformed Jurkat T cell line (IC-50 = 37 mu-M) or primary **human** fibroblasts (IC-50 = 45 mu-M), suggesting that normal lymphocytes may be particularly sensitive to HQ. The effects of HQ and catechol on DNA synthesis could be partially reversed by a combination of adenosine deoxyribose and guanosine deoxyribose, suggesting that both compounds may inhibit ribonucleotide reductase.

L6 ANSWER 3 OF 35 SCISEARCH COPYRIGHT 1998 ISI (R)
ACCESSION NUMBER: 96:460875 SCISEARCH
THE GENUINE ARTICLE: UR604
TITLE: STRUCTURE AND MECHANISM OF INOSINE MONOPHOSPHATE DEHYDROGENASE IN COMPLEX WITH THE IMMUNOSUPPRESSANT MYCOPHENOLIC-ACID
AUTHOR: SINTCHAK M D (Reprint); FLEMING M A; FUTER O; RAYBUCK S A; CHAMBERS S P; CARON P R; MURCKO M A; WILSON K P
CORPORATE SOURCE: VERTEX PHARMACEUT INC, 40 ALLSTON ST, CAMBRIDGE, MA, 02139 (Reprint)
COUNTRY OF AUTHOR: USA
SOURCE: CELL, (14 JUN 1996) Vol. 85, No. 6, pp. 921-930. ISSN: 0092-8674.
DOCUMENT TYPE: Article; Journal
FILE SEGMENT: LIFE
LANGUAGE: ENGLISH
REFERENCE COUNT: 58

ABSTRACT IS AVAILABLE IN THE ALL AND IALL FORMATS

AB The structure of inosine-5'-monophosphate dehydrogenase (IMPDH) in complex with IMP and mycophenolic acid (MPA) has been determined by X-ray diffraction. IMPDH plays a central role in B and T lymphocyte replication. MPA is a potent IMPDH inhibitor and the active metabolite of an immunosuppressive drug recently approved for the treatment of allograft rejection. IMPDH comprises two domains: a core domain, which is an alpha/beta barrel and contains the active site, and a flanking domain. The complex, in combination with mutagenesis and kinetic data, provides a structural basis for understanding the mechanism of IMPDH activity and indicates that MPA inhibits IMPDH by acting as a replacement for the nicotinamide portion of the nicotinamide adenine dinucleotide cofactor and a catalytic water molecule.

L6 ANSWER 4 OF 35 MEDLINE DUPLICATE 1
ACCESSION NUMBER: 97045815 MEDLINE
DOCUMENT NUMBER: 97045815
TITLE: Cloning and characterization of the gene encoding IMP dehydrogenase from Arabidopsis thaliana.
AUTHOR: Collart F R; Osipiuk J; Trent J; Olsen G J; Huberman E
CORPORATE SOURCE: Center for Mechanistic Biology and Biotechnology, Argonne National Laboratory, IL 60439, USA.
SOURCE: GENE, (1996 Oct 3) 174 (2) 217-20.
Journal code: FOP. ISSN: 0378-1119.
PUB. COUNTRY: Netherlands
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
OTHER SOURCE: GENBANK-L34684; GENBANK-J04208
ENTRY MONTH: 199702
ENTRY WEEK: 19970204
AB We have cloned and characterized the gene encoding inosine monophosphate dehydrogenase (IMPDH) from Arabidopsis thaliana (At). The transcription unit of the At gene spans approximately 1900 bp and specifies a protein of 503 amino acids with a calculated relative molecular mass (M(r)) of 54,190. The gene is comprised of a minimum of four introns and five exons with all donor and acceptor splice sequences conforming to previously proposed consensus sequences. The deduced IMPDH amino-acid sequence from At shows a remarkable similarity to other eukaryotic IMPDH sequences, with a 48% identity to **human** Type II enzyme. Allowing for conservative substitutions, the enzyme is 69% similar to **human** Type II IMPDH. The putative active-site sequence of At IMPDH conforms to the IMP dehydrogenase/**guanosine** monophosphate **reductase** motif and contains an essential active-site cysteine residue.

L6 ANSWER 5 OF 35 MEDLINE DUPLICATE 2
ACCESSION NUMBER: 96356440 MEDLINE
DOCUMENT NUMBER: 96356440
TITLE: An integrated map of **human** chromosome 6p23.
AUTHOR: Olavesen M G; Davies A F; Broxholme S J; Wixon J L; Senger G; Nizetic D; Campbell R D; Ragoussis J
CORPORATE SOURCE: Division of Medical and Molecular Genetics, United Medical School of Guy's and St. Thomas's Hospital (UMDS), London, UK.. m.olavesen@umds.ac.uk
SOURCE: GENOME RESEARCH, (1995 Nov) 5 (4) 342-58.
Journal code: CES. ISSN: 1088-9051.
PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199705
ENTRY WEEK: 19970502
AB The **human** chromosomal band 6p23 is a Giemsa-negative (light) band that may be expected to be relatively gene rich. The genes for spinocerebellar ataxia type 1 (SCA1), **guanosine** monophosphate **reductase** (GMPR), DEK involved in a subtype of acute myeloid leukemia (AML), and the folate-sensitive fragile site FRA6A, have already been mapped to 6p23. Recent linkage data have suggested evidence for a susceptibility locus for schizophrenia in the region. We have constructed a single YAC contig of approximately 100 clones spanning the entire 6p23 band from 6p22.3 to 6p24.1 and covering 7.5-8.5 Mb of DNA. The YAC contig contains 55 markers including genetically mapped STSs, physically mapped STSs, anonymous STSs, anonymous ESTs, and ESTs from the genes mapped to the region. The order of the genetically mapped STSs is consistent with their order in the contig and some of the markers not resolved on the genetic map have been resolved by the YACs. Four of the YACs from 6p23 and covering approximately 3 Mb of DNA have been used to isolate approximately 300 cosmids from a flow-sorted **human** chromosome 6 cosmid library, which have been organized into pockets. The proposed susceptibility locus for schizophrenia is most closely linked to D6S260, which is located within the YAC contig along with genetic markers < or = 5 cM on either side. Therefore, the presented materials are valuable reagents for characterization of the genomic

region implicated in schizophrenia.

L6 ANSWER 6 OF 35 MEDLINE DUPLICATE 3
ACCESSION NUMBER: 95390093 MEDLINE
DOCUMENT NUMBER: 95390093
TITLE: Reciprocal alterations of enzymic phenotype of purine and pyrimidine metabolism in induced differentiation of leukemia cells.
AUTHOR: Yamaji Y; Shiotani T; Nakamura H; Hata Y; Hashimoto Y; Nagai M; Fujita J; Takahara J
CORPORATE SOURCE: First Department of Internal Medicine, Kagawa Medical School, Japan.
SOURCE: ADVANCES IN EXPERIMENTAL MEDICINE AND BIOLOGY, (1994) 370 747-51. Ref: 15
Journal code: 2LU. ISSN: 0065-2598.
PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)
General Review; (REVIEW)
(REVIEW, TUTORIAL)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199512

L6 ANSWER 7 OF 35 MEDLINE DUPLICATE 4
ACCESSION NUMBER: 94245161 MEDLINE
DOCUMENT NUMBER: 94245161
TITLE: Mapping of the **human guanosine** monophosphate **reductase** gene (GMPR) to chromosome 6p23 by fluorescence in situ hybridization.
AUTHOR: Murano I; Tsukahara M; Kajii T; Yoshida A
CORPORATE SOURCE: Department of Pediatrics, Yamaguchi University School of Medicine, Japan..
SOURCE: GENOMICS, (1994 Jan 1) 19 (1) 179-80.
Journal code: GEN. ISSN: 0888-7543.
PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199408

L6 ANSWER 8 OF 35 BIOSIS COPYRIGHT 1998 BIOSIS
ACCESSION NUMBER: 94:79306 BIOSIS
DOCUMENT NUMBER: 97092306
TITLE: Sequential impact of tiazofurin and ribavirin on the enzymic program of the bone marrow.
AUTHOR(S): Prajda N; Hata Y; Abonyi M; Singhal R L; Weber G
CORPORATE SOURCE: Lab. Experimental Oncol., Indiana Univ. Sch. Med., 702 Barnhill Drive, Indianapolis, IN 46202-5200, USA
SOURCE: Cancer Research 53 (24). 1993. 5982-5986. ISSN: 0008-5472
LANGUAGE: English
AB Tiazofurin and ribavirin are clinically used inhibitors of IMP dehydrogenase (DH), binding to the NAD and IMP sites, respectively, of the target enzyme. In patients with chronic granulocytic leukemia in blast crisis, daily tiazofurin infusions decreased the high IMP DH activity in blast cells and resulted in 77% response (G. Weber. In: R. A. Harkness et al., Purine and Pyrimidine Metabolism in Man, Vol. VII, Part B, pp. 287-292,1991). However, patients relapsed in a few weeks with emergence of high IMP DH activity (G. Tricot et al., Int. J. Cell Cloning, 8: 161-170, 1990). The present study showed that the tiazofurin-induced depression of IMP DH activity in rat bone marrow can be maintained by ribavirin injection. Tiazofurin (150 mg/kg, i.p., once a day for 2 days) decreased IMP DH activity to 10% and ribavirin (250 mg/kg, i.p., once a day for the subsequent 3 days) maintained the enzymic activity at 20 to 30% of control values. In control rats where no ribavirin was given, IMP DH activity of the tiazofurin-treated rats rapidly returned to the range of untreated animals. The decrease of IMP DH activity (t-1/2 = 2.6 h) sharply preceded that of the bone marrow cellularity (t-1/2 = 17.4 h). In addition to the target enzyme, IMP DH, tiazofurin also decreased activities of the guanylate metabolic enzymes, guanine phosphoribosyltransferase and **GMP reductase**, and

the pyrimidine salvage enzymes, deoxycytidine and thymidine kinases with t-1/2 of 2.6, 4.7, 6.0, 3.4, and 6.5 h, respectively. In cycloheximide-treated rats, where much of protein biosynthesis was blocked, the t-1/2s of these five enzymes in bone marrow were shorter, 1.6, 4.3, 3.0, 0.6, and 0.8 h, respectively. Thus, the impact of tiazofurin in the bone marrow entails a decrease in the activity of the target enzyme, IMP DH, and also of other enzymes in purine and pyrimidine biosynthesis as a result of the enzyme half-lives shortened by this drug. These novel observations should assist in achieving better protection and recovery of bone marrow during and after chemotherapy.

L6 ANSWER 9 OF 35 MEDLINE DUPLICATE 5
ACCESSION NUMBER: 92341729 MEDLINE
DOCUMENT NUMBER: 92341729
TITLE: Reciprocal alterations of **GMP reductase** and IMP dehydrogenase activities during differentiation in HL-60 leukemia cells.
AUTHOR: Nakamura H; Natsumeda Y; Nagai M; Takahara J; Irino S; Weber G
CORPORATE SOURCE: Laboratory for Experimental Oncology, Indiana University School of Medicine, Indianapolis 46202-5200.
CONTRACT NUMBER: CA-42510 (NCI)
SOURCE: LEUKEMIA RESEARCH, (1992 Jun-Jul) 16 (6-7) 561-4. Journal code: K9M. ISSN: 0145-2126.
PUB. COUNTRY: ENGLAND: United Kingdom
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals; Cancer Journals
ENTRY MONTH: 199210
AB The study was undertaken to elucidate the regulatory roles of **GMP reductase** (GMPR) and IMP dehydrogenase (IMPDH) on purine interconversion during differentiation. Treatment of HL-60 cells with retinoic acid (1 microM) induced granulocytic differentiation which was accompanied with a 2.4-fold increase in GMPR and 55% decrease in IMPDH activities. Maturation induced by 12-O-tetradecanoylphorbol 13-acetate or dimethylsulfoxide was also associated with similar reciprocal alterations. Incubation with guanosine (200 microM), which expands the guanine nucleotide pool, elevated GMPR (1.9-fold) and decreased IMPDH (73%) activities. The synchronous and opposing alterations in GMPR and IMPDH activities should amplify the metabolic response due to differentiation or guanylate pool expansion.

L6 ANSWER 10 OF 35 MEDLINE DUPLICATE 6
ACCESSION NUMBER: 93089493 MEDLINE
DOCUMENT NUMBER: 93089493
TITLE: Direct assay method for **guanosine** 5'-monophosphate **reductase** activity.
AUTHOR: Nakamura H; Natsumeda Y; Nagai M; Shiotani T; Weber G
CORPORATE SOURCE: Laboratory for Experimental Oncology, Indiana University School of Medicine, Indianapolis 46202-5200.
CONTRACT NUMBER: CA-42510 (NCI)
SOURCE: ANALYTICAL BIOCHEMISTRY, (1992 Oct) 206 (1) 115-8. Journal code: 4NK. ISSN: 0003-2697.
PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199303
AB A sensitive and simple micromethod for the accurate measurement of **GMP reductase** (**EC 1.6.8**) activity in crude extracts is described. The reaction product of [8-14C]IMP was separated from the substrate [8-14C]GMP by descending chromatography on Whatman DE81 ion-exchange paper. This separation method provides an analysis of the possible interfering reactions, such as the metabolic conversion of the substrate GMP to GDP, GTP, and/or guanosine, and guanine and the loss of the product IMP to inosine, hypoxanthine, and other metabolites. Low blank values (70-90 cpm) were obtained consistently with this assay because the IMP spot moves faster than the GMP spot. The major advantages of this method are direct measurement of

GMP reductase activity in crude extracts, high sensitivity (with a limit of detection of < 10 pmol of IMP production), high reproducibility (< +/- 5%), and capability to measure activity in small samples (9 micrograms protein).

L6 ANSWER 11 OF 35 MEDLINE DUPLICATE 7
ACCESSION NUMBER: 92359034 MEDLINE
DOCUMENT NUMBER: 92359034
TITLE: Regulation of GTP biosynthesis.
AUTHOR: Weber G; Nakamura H; Natsumeda Y; Szekeres T; Nagai M
CORPORATE SOURCE: Laboratory for Experimental Oncology, Indiana University School of Medicine, Indianapolis 46202-5200.
CONTRACT NUMBER: CA-42510 (NCI)
SOURCE: ADVANCES IN ENZYME REGULATION, (1992) 32 57-69. Journal code: 2LG. ISSN: 0065-2571.
PUB. COUNTRY: ENGLAND: United Kingdom
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199211
AB In the regulation of GTP biosynthesis, complex interactions are observed. A major factor is the behavior of the activity of IMPDH, the rate-limiting enzyme of de novo GTP biosynthesis, and the activity of GPRT, the salvage enzyme of guanylate production. The activities of GMP synthase, GMP kinase and nucleoside-diphosphate kinase are also relevant. In neoplastic transformation, the activities and amounts of all these biosynthetic enzymes are elevated as shown by kinetic assays and by immunotitration for IMPDH. In cancer cells, the up-regulation of guanylate biosynthesis is amplified by the concurrent decrease in activities of the catabolic enzymes, nucleotidase, nucleoside phosphorylase, and the rate-limiting purine catabolic enzyme, xanthine oxidase. The up-regulation of the capacity for GTP biosynthesis is also manifested in the stepped-up capacity of the overall pathways of de novo and salvage guanylate production. The linking with neoplasia is also seen in the elevation of the activities of IMPDH and GMP synthase and de novo and salvage pathways as the proliferative program is expressed as cancer cells enter log phase in tissue culture. The activity of **GMP reductase** showed no linkage with neoplastic or normal cell proliferation; however, in induced differentiation in HL-60 cells the activity increased concurrently with the decline in the activity of IMPDH. This reciprocal regulation of the two enzymes is observed in differentiation induced by retinoic acid, DMSO or TPA in HL-60 cells. In support of enzyme-pattern-targeted chemotherapy, evidence was provided for synergistic chemotherapy with tiazofurin (inhibitor of IMPDH) and hypoxanthine (competitive inhibitor of GPRT and guanine salvage activity) in patients and in tissue culture cell lines. These investigations should contribute to the clarification of the controlling factors of GMP biosynthesis, the role of the various enzymes, the behavior of **GMP reductase** in mammalian cells and the application of the approaches of enzyme-pattern-targeted chemotherapy in patients.

L6 ANSWER 12 OF 35 BIOSIS COPYRIGHT 1998 BIOSIS
ACCESSION NUMBER: 92:363466 BIOSIS
DOCUMENT NUMBER: BR43:41616
TITLE: RECIPROCAL CONTROL OF IMP DEHYDROGENASE IMPDH AND **GMP REDUCTASE** GMPR ACTIVITIES IN DIFFERENTIATION IN HL-60 LEUKEMIC CELLS.
AUTHOR(S): NAKAMURA H; NATSUMEDA Y; NAGAI M; HATA Y; WEBER G
CORPORATE SOURCE: LAB. EXP. ONCOL., INDIANA UNIV. SCH. MED., INDIANAPOLIS, INDIANA 46202-5200.
SOURCE: 83RD ANNUAL MEETING OF THE AMERICAN ASSOCIATION FOR CANCER RESEARCH, SAN DIEGO, CALIFORNIA, USA, MAY 20-23, 1992. PROC AM ASSOC CANCER RES ANNU MEET 33 (0). 1992. 20. CODEN: PAMREA
DOCUMENT TYPE: Conference
LANGUAGE: English

L6 ANSWER 13 OF 35 MEDLINE DUPLICATE 8
ACCESSION NUMBER: 92098100 MEDLINE
DOCUMENT NUMBER: 92098100

TITLE: Identification of common variant alleles of the **human guanosine** monophosphate **reductase** gene.
AUTHOR: Kondoh T; Kanno H; Chang L F; Yoshida A
CORPORATE SOURCE: Department of Biochemical Genetics, Beckman Research Institute of the City of Hope, Duarte, CA 91010..
CONTRACT NUMBER: HL-29515 (NHLBI)
SOURCE: HUMAN GENETICS, (1991 Dec) 88 (2) 225-7.
Journal code: GED. ISSN: 0340-6717.
PUB. COUNTRY: GERMANY: Germany, Federal Republic of
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals; Cancer Journals
OTHER SOURCE: GENBANK-S73241; GENBANK-S73246; GENBANK-S73250; GENBANK-S73294; GENBANK-S73300; GENBANK-S73304; GENBANK-S73309; GENBANK-S73312; GENBANK-S73315; GENBANK-S73319
ENTRY MONTH: 199204
AB Examination of nucleotide sequences of genomic DNA samples obtained from several unrelated Caucasians and orientals revealed the existence of four variant alleles in the chromosome 6-linked quanosine monophosphate reductase locus. The wild-type gene has T at position 42 (counting from A of the chain initiation codon), C at 630, G at 700, and T at 766, i.e., its structure is T(42)-C(630)-G(700)-T(766). The variant gene, T-T-G-T, was found in about 10% of the loci examined. The C-to-T change at 630 was silent and did not induce any amino acid substitution (His at amino acid residue 210), but it created an additional NcoI cleavage site in the variant gene. The frequency of another variant, the T-C-G-A gene, was about 30%. The T-to-A change at 766 caused an amino acid substitution Phe----Ile at amino acid residue 256 in the variant protein. Frequencies of the C-C-G-T variant and the T-C-A-T variant were probably lower than 5% in Caucasians and orientals.

L6 ANSWER 14 OF 35 MEDLINE DUPLICATE 9
ACCESSION NUMBER: 92098099 MEDLINE
DOCUMENT NUMBER: 92098099
TITLE: Genomic structure and expression of **human guanosine** monophosphate **reductase**.
AUTHOR: Kondoh T; Kanno H; Chang L; Yoshida A
CORPORATE SOURCE: Department of Biochemical Genetics, Beckman Research Institute of the City of Hope, Duarte, CA 91010.
CONTRACT NUMBER: HL-29515 (NHLBI)
SOURCE: HUMAN GENETICS, (1991 Dec) 88 (2) 219-24.
Journal code: GED. ISSN: 0340-6717.
PUB. COUNTRY: GERMANY: Germany, Federal Republic of
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals; Cancer Journals
OTHER SOURCE: GENBANK-S73035; GENBANK-S73043; GENBANK-S73045; GENBANK-S73047; GENBANK-S73049; GENBANK-S73053; GENBANK-S73060; GENBANK-S73066; GENBANK-S73075; GENBANK-M61784
ENTRY MONTH: 199204
AB In vitro translation in the rabbit reticulocyte system and transient expression in Cos7 cells were performed to characterize the protein encoded by a chromosome 6-linked **human** cDNA clone, whose nucleotide sequence is homologous to that of Escherichia coli **guanosine** monophosphate **reductase** (**GMP reductase**) cDNA. The molecular weight of the peptide produced by the cDNA was about 37,000 Dalton, and the protein produced in the Cos7 cells exhibited **GMP reductase** activity, substantiating that the cDNA is for **human GMP reductase**. The corresponding genomic clones were obtained from two **human** genomic libraries. The gene spans about 50 kb and is composed of 9 exons, which encode 345 amino acid residues. Organization of exons and introns was established by DNA sequencing of each exon and splicing junctions. The gene contains two potential SpI binding sites within exon 1, and a functional atypical polyadenylation signal in exon 9.

L6 ANSWER 15 OF 35 CAPLUS
ACCESSION NUMBER: 1990:156500 CAPLUS
DOCUMENT NUMBER: 112:156500

TITLE: Mechanisms of deoxyguanosine lymphotoxicity. **Human** thymocytes, but not peripheral blood lymphocytes accumulate deoxy-GTP in conditions simulating purine nucleoside phosphorylase deficiency
AUTHOR(S): Fairbanks, Lynette D.; Taddeo, Anna; Duley, John A.; Simmonds, H. Anne
CORPORATE SOURCE: Purine Res. Lab., UMDS Guy's Hosp., London, UK
SOURCE: J. Immunol. (1990), 144(2), 485-91
CODEN: JOIMA3; ISSN: 0022-1767
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Purine nucleoside phosphorylase (PNP) deficiency was simulated by preincubating with guanosine (Guo) to minimize PNP activity while investigating the metab. of [14C]deoxyguanosine (dGuo) at physiol. concns. (10 .mu.M) by unstimulated thymocytes, tonsil-derived T and B lymphocytes, and peripheral blood cells over short time periods. GTP was the principal metabolite formed from dGuo by all cell types with functional PNP and hypoxanthine-guanine phosphoribosyltransferase, confirming formation via degrdn. to guanine with subsequent salvage by hypoxanthine-guanine phosphoribosyltransferase. Thymocytes also formed a small amt. of dGTP, presumably through direct phosphorylation by deoxycytidine kinase. Incorporation of dGuo into GTP was effectively inhibited in all instances under PNP deficiency conditions and dGTP levels increased up to 10-fold in thymocytes; tonsil-derived B or T lymphocytes and unfractionated PBL did not accumulate dGTP. E and platelets formed low amts. of dGTP. Preincubation with adenine (50 .mu.M) to reverse any Guo-induced toxicity reduced the incorporation of dGuo into GTP without inhibitor in all cell types with intact adenine phosphoribosyltransferase, but did not affect dGTP accumulation in thymocytes, thus excluding any indirect formation of dGTP via the de novo route. The rapid metab. of dGuo to GTP, in the absence of PNP inhibition and subsequent effects of the altered GTP concns. on cellular metab. may account for the differing responses reported by investigators with the use of low dGuo concns. (enhancing), compared with high (inhibitory), concns. in mitogen-stimulated lymphocyte studies. The exclusive ability of thymocytes to accumulate significant amts. of dGTP, and inability of B cells to do so, provides a logical explanation for the selective T cell immunodeficiency in PNP deficiency.

L6 ANSWER 16 OF 35 CAPLUS COPYRIGHT 1998 ACS DUPLICATE 10
ACCESSION NUMBER: 1990:548003 CAPLUS
DOCUMENT NUMBER: 113:148003
TITLE: Origin of "fused" glucose-6-phosphate dehydrogenase
AUTHOR(S): Yoshida, Akira; Kan, Yuet Wai
CORPORATE SOURCE: Dep. Biochem. Genet., Beckman Res. Inst. City of Hope, Duarte, CA, 91010, USA
SOURCE: Cell (Cambridge, Mass.) (1990), 62(1), 11-12
CODEN: CELLB5; ISSN: 0092-8674
DOCUMENT TYPE: Journal
LANGUAGE: English

AB A polemic. The original conclusion of H. Kanno, et al. (ibid. 1989, 58, 595) that a fusion product of glucose-6-phosphate dehydrogenase (GGPD) with **GMP reductase** exists as an enzyme form by **human** erythrocytes is withdrawn and acknowledged to be an artifact of purifn. procedures.

L6 ANSWER 17 OF 35 CAPLUS COPYRIGHT 1998 ACS DUPLICATE 11
ACCESSION NUMBER: 1990:493989 CAPLUS
DOCUMENT NUMBER: 113:93989
TITLE: **Human** red cell glucose-6-phosphate dehydrogenase is encoded only on the X chromosome
AUTHOR(S): Mason, Philip J.; Bautista, Jose M.; Vulliamy, Tom J.; Turner, Neil; Luzzatto, Lucio
CORPORATE SOURCE: Dep. Haematol., R. Postgrad. Med. Sch., London, W12 0NN, UK
SOURCE: Cell (Cambridge, Mass.) (1990), 62(1), 9-10
CODEN: CELLB5; ISSN: 0092-8674
DOCUMENT TYPE: Journal
LANGUAGE: English

AB A polemic. The work of H. Kanno, et al. (ibid. 1989, 58, 595), which concludes that a fusion product of glucose-6-phosphate dehydrogenase (GGPD) with **GMP reductase** in erythrocytes arises from cross-translation or transpeptidation, is disputed. It is concluded, based on anal. of the structure of genetic variants of **human** GGPD, that X-linked GGPD constitutes most or all of the red cell enzyme.

L6 ANSWER 18 OF 35 CAPLUS COPYRIGHT 1998 ACS
ACCESSION NUMBER: 1990:493988 CAPLUS
DOCUMENT NUMBER: 113:93988
TITLE: **Human** red cell glucose-6-phosphate dehydrogenase: all active enzyme has sequence predicted by the X chromosome-encoded cDNA
AUTHOR(S): Buetler, Ernest; Gelbart, Terri; Kuhl, Wanda
CORPORATE SOURCE: Dep. Mol. Exp. Med., Res. Inst. Scripps Clin., La Jolla, CA, 92037, USA
SOURCE: Cell (Cambridge, Mass.) (1990), 62(1), 7-9
CODEN: CELLB5; ISSN: 0092-8674
DOCUMENT TYPE: Journal
LANGUAGE: English
AB A polemic. The work of H. Kanno, et al. (ibid. 1989, 58, 595), which concludes that a fusion product of glucose-6-phosphate dehydrogenase (GGPD) with **GMP reductase** exists in **human** erythrocytes and arises via cross-translation or transpeptidation, is disputed. Results from microsequencing of highly purified red cell GGPD and the use of antibodies against chromosome 6-derived and X chromosome-derived peptides are presented to provide support for only a X chromosome-encoded GGPD.

L6 ANSWER 19 OF 35 MEDLINE DUPLICATE 12
ACCESSION NUMBER: 89376552 MEDLINE
DOCUMENT NUMBER: 89376552
TITLE: The **human** mRNA that provides the N-terminus of chimeric G6PD encodes **GMP reductase**.
AUTHOR: Henikoff S; Smith J M
CORPORATE SOURCE: Fred Hutchinson Cancer Research Center, Seattle, Washington 98104..
SOURCE: CELL, (1989 Sep 22) 58 (6) 1021-2.
Journal code: CQ4. ISSN: 0092-8674.
PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals; Cancer Journals
ENTRY MONTH: 198912

L6 ANSWER 20 OF 35 CAPLUS COPYRIGHT 1998 ACS
ACCESSION NUMBER: 1987:405489 CAPLUS
DOCUMENT NUMBER: 107:5489
TITLE: Modification of ribonucleotide and deoxyribonucleotide metabolism in interferon-treated **human** B-lymphoblastoid cells
AUTHOR(S): Barankiewicz, Jerzy; Kaplinsky, Chaim; Cohen, Amos
CORPORATE SOURCE: Res. Inst., Hosp. Sick Child, Toronto, ON, M5G 1X8, Can.
SOURCE: J. Interferon Res. (1986), 6(6), 717-27
CODEN: JIREDJ; ISSN: 0197-8357
DOCUMENT TYPE: Journal
LANGUAGE: English
AB The effect of recombinant interferon-.alpha.2 (IFN-.alpha.2) (50 units U/mL) on the cell cycle, nucleotide metab., and protein and nucleic acid synthesis was studied in **human** B-lymphoblastoid (Daudi) cells. Cell cycle anal. showed that IFN treatment resulted in G0/G1 arrest (69%) as compared to control cells (42% at G0/G1). IFN inhibited the incorporation of radioactive thymidine and uridine into DNA and RNA, resp., but had only slight effect on incorporation of radioactive threonine, leucine, or valine into proteins. IFN inhibited ribonucleotide biosynthesis by de novo and salvage pathways and decreased level of the P-ribose-PP. Both pathways of deoxyribonucleotide biosynthesis, ribonucleotide redn. and deoxyribonucleoside salvage, were also

markedly inhibited by IFN. In contrast, ribonucleotide catabolism was increased in the presence of IFN. No changes in ribonucleotide interconversion were found. Intracellular concns. of both ribonucleotides and deoxyribonucleotides were markedly diminished by IFN. These results suggest that inhibition of both ribonucleotide and deoxyribonucleotide biosynthesis, together with increased rate of nucleotide catabolism, may decrease intracellular nucleotide availability. Decrease of the supply of nucleic acid precursors, as well as limitation of nucleotides for energy metab. and other processes, may result in the inhibition of cell multiplications.

L6 ANSWER 21 OF 35 MEDLINE DUPLICATE 13
ACCESSION NUMBER: 87022333 MEDLINE
DOCUMENT NUMBER: 87022333
TITLE: Steady-state kinetics of the reaction catalyzed by **GMP reductase.**
AUTHOR: Spadaro A; Giacomello A; Salerno C
SOURCE: ADVANCES IN EXPERIMENTAL MEDICINE AND BIOLOGY, (1986) 195 Pt B 321-4.
Journal code: 2LU. ISSN: 0065-2598.
PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 198701

L6 ANSWER 22 OF 35 MEDLINE
ACCESSION NUMBER: 86230693 MEDLINE
DOCUMENT NUMBER: 86230693
TITLE: Purine-metabolising enzymes in Entamoeba histolytica.
AUTHOR: Hassan H F; Coombs G H
SOURCE: MOLECULAR AND BIOCHEMICAL PARASITOLOGY, (1986 Apr) 19 (1) 19-26.
Journal code: NOR. ISSN: 0166-6851.
PUB. COUNTRY: Netherlands
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 198609
AB The enzymes that catalyse the salvage of purines in Entamoeba histolytica trophozoites have been surveyed. Adenine deaminase (EC 3.5.4.2), adenosine deaminase (EC 3.5.4.4), guanine deaminase (EC 3.5.4.3), adenine phosphoribosyltransferase (PRTase) (EC 2.4.2.7), xanthine PRTase (EC 2.4.2.22) and hypoxanthine PRTase (EC 2.4.2.8) were all detected in cell homogenates but only at low activities, whereas AMP deaminase (EC 3.5.4.6) and guanine PRTase (EC 2.4.2.8) were not found. Phosphorylases (EC 2.4.2.1) active in both anabolic and catabolic directions were present and all nucleosides tested were phosphorylated by kinases (EC 2.7.1.15, EC 2.7.1.20, EC 2.7.1.73). 3'-Nucleotidase (EC 3.1.3.6) and 5'-nucleotidase (EC 3.1.3.5) were found, the former being mainly particulate. Nucleotide interconversion enzymes (adenylosuccinate lyase, EC 4.3.2.2; adenylosuccinate synthetase, EC 6.3.4.4; IMP dehydrogenase, EC 1.2.1.14; GMP synthetase, EC 6.3.5.2 and **GMP reductase, EC 1.6.6.8**) were not detected. The results suggest that in E. histolytica the main route of nucleotide synthesis is from the individual bases through the actions of phosphorylases and kinases.

L6 ANSWER 23 OF 35 BIOSIS COPYRIGHT 1998 BIOSIS
ACCESSION NUMBER: 85:200090 BIOSIS
DOCUMENT NUMBER: BR29:90086
TITLE: STEADY-STATE KINETICS OF THE REACTION CATALYZED BY **GMP REDUCTASE EC-1.6.6.8.**
AUTHOR(S): SPADARO A; GIACOMELLO A; SALERNO C
CORPORATE SOURCE: INST. RHEUMATOL., UNIV. ROME, ROME ITALY.
SOURCE: 5TH INTERNATIONAL SYMPOSIUM ON HUMAN PURINE AND PYRIMIDINE METABOLISM, SAN DIEGO, CALIF., USA, JULY 28-AUG. 1, 1985. PEDIATR RES 19 (7). 1985. 777. CODEN: PEREBL ISSN: 0031-3998
DOCUMENT TYPE: Conference
LANGUAGE: English

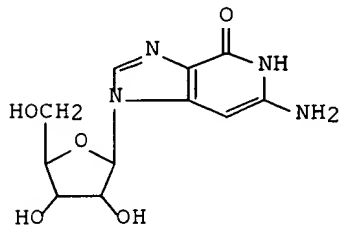
L6 ANSWER 24 OF 35 BIOSIS COPYRIGHT 1998 BIOSIS
ACCESSION NUMBER: 85:199924 BIOSIS
DOCUMENT NUMBER: BR29:89920
TITLE: MORPHINE SITES OF ACTION IN GUANOSINE NUCLEOSIDE PATHWAY.
AUTHOR(S): COHN L; EGGERDING F A; MACHADO A F; COHN S J
CORPORATE SOURCE: DREW/UCLA SCH. MED., DEP. ANESTHESIOLOGY RES., LOS ANGELES, CA, USA.
SOURCE: 5TH INTERNATIONAL SYMPOSIUM ON HUMAN PURINE AND PYRIMIDINE METABOLISM, SAN DIEGO, CALIF., USA, JULY 28-AUG. 1, 1985. PEDIATR RES 19 (7). 1985. 750. CODEN: PEREBL ISSN: 0031-3998
DOCUMENT TYPE: Conference
LANGUAGE: English

L6 ANSWER 25 OF 35 MEDLINE DUPLICATE 14
ACCESSION NUMBER: 85228537 MEDLINE
DOCUMENT NUMBER: 85228537
TITLE: Studies on the mechanism of cytotoxicity of 3-deazaguanosine in **human** cancer cells.
AUTHOR: Page T; Jacobsen S J; Smejkal R M; Scheele J; Nyhan W L; Mangum J H; Robins R K
SOURCE: CANCER CHEMOTHERAPY AND PHARMACOLOGY, (1985) 15 (1) 59-62.
Journal code: C9S. ISSN: 0344-5704.
PUB. COUNTRY: GERMANY, WEST: Germany, Federal Republic of
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals; Cancer Journals
ENTRY MONTH: 198510
AB The mechanism of toxicity of 3-deazaguanosine was studied in a number of **human** tumor cell lines by determination of the effects of various purine compounds on the growth of the cells in the presence of the drug and by studies of the effects of 3-deazaguanosine on the metabolism of radiolabeled precursors in these cells. The drug was found to be toxic to all of the cell lines tested. The toxicity was reversible with removal of the drug. None of the purine bases tested could restore normal growth after 48 h exposure to 3-deazaguanosine; the bases were more effective in preventing cytotoxicity when added simultaneously with the drug. Metabolic studies indicated decreased synthesis of DNA, variable inhibition of de novo purine synthesis, and complete inhibition of the enzyme **guanosine** monophosphate **reductase** by 3-deazaguanosine.

L6 ANSWER 26 OF 35 MEDLINE DUPLICATE 15
ACCESSION NUMBER: 84231436 MEDLINE
DOCUMENT NUMBER: 84231436
TITLE: Monophosphates of formycin B and allopurinol riboside. Interactions with leishmanial and mammalian succino-AMP synthetase and **GMP reductase**.
AUTHOR: Spector T; Jones T E; LaFon S W; Nelson D J; Berens R L; Marr J J
CONTRACT NUMBER: AI-15663091 (NIAID)
AI-17970-01 (NIAID)
SOURCE: BIOCHEMICAL PHARMACOLOGY, (1984 May 15) 33 (10) 1611-7.
Journal code: 9Z4. ISSN: 0006-2952.
PUB. COUNTRY: ENGLAND: United Kingdom
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals; Cancer Journals
ENTRY MONTH: 198409
AB Formycin B 5'-monophosphate (Form B-MP) and allopurinol riboside 5'-monophosphate (HPPR -MP) are isomers of IMP that are metabolically produced when Leishmania spp. are incubated with the antileishmanial agents formycin B and allopurinol or allopurinol riboside. The interactions of Form B-MP with succino -AMP synthetase and **GMP reductase** from both leishmanial and mammalian sources were compared with the data of earlier studies with HPPR -MP. Both analogs could substitute for IMP as a substrate for succino -AMP synthetase isolated from Leishmania donovani. The V'max values of Form B-MP and HPPR -MP were about 1% of the V'max of

IMP. Only Form B-MP (and not HPPR -MP) could serve as an alternative substrate for mammalian succino -AMP synthetase. The V'max of Form B-MP was 40% that of IMP. The corresponding analogs of AMP, ADP and ATP were produced when Formycin B was incubated with mouse L cells. The Formycin A residue was incorporated into the cellular RNA. The amount of Formycin A-TP produced (relative to ATP) in mouse L cells was considerably less than that produced in Leishmania spp. Both Form B-MP and HPPR -MP were inhibitors of partially purified **GMP reductase** from L. donovani. The binding of Form B-MP and HPPR -MP to **human GMP reductase** was 40- and 100-fold weaker, respectively, than the binding to leishmanial **GMP reductase**. Pretreatment of promastigotes of L. donovani with either allopurinol or Formycin B resulted in greater than 95% reduction of the incorporation of the radiolabel from [14C]xanthine into ATP and greater than 80% reduction of the incorporation of the label into GTP. The HPPR -MP and Form B-MP present in these cells may have inhibited the leishmanial succino -AMP synthetase and **GMP reductase**. The analogs had little or no effect on the pool sizes of ATP and GTP of either mouse L cells or L. donovani.

L6 ANSWER 27 OF 35 CAPLUS COPYRIGHT 1998 ACS DUPLICATE 16
ACCESSION NUMBER: 1984:448279 CAPLUS
DOCUMENT NUMBER: 101:48279
TITLE: Novel nucleoside inhibitors of guanosine metabolism as antitumor agents
AUTHOR(S): Smejkal, Ruthann M.; Page, Theodore T.; Boyd, Victoria L.; Nyhan, William L.; Jacobsen, Stephen J.; Mangum, John H.; Robins, Roland K.
CORPORATE SOURCE: Dep. Pediatr., Univ. California, San Diego, CA, 92093, USA
SOURCE: Adv. Enzyme Regul. (1984), 22, 59-68
CODEN: AEZRA2; ISSN: 0065-2571
DOCUMENT TYPE: Journal
LANGUAGE: English
GI



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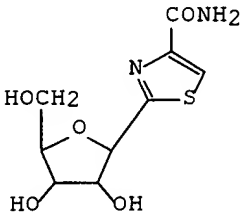

II

AB 3-Deazaguanosine (I) [56039-11-3] and tiazofurin (II) [60084-10-8] inhibited the growth of **human** lung adenocarcinoma cells (SkLu-1). I appeared to inhibit the salvage interconversion of guanine [73-40-5] into adenine nucleotides via **GMP reductase** (**EC 1.6.6**. **8**) [9029-32-7] and a moderate lowering of the guanine nucleotide pools. Exposure of SkLu-1 cells to II resulted primarily in the depletion of guanine nucleotide pools in a pattern suggesting IMP dehydrogenase [9028-93-7] inhibition. Combined exposure of SkLu-1 cells to I and II resulted in a synergistic effect which persisted in SkLu-1 cells even though no inhibition of de novo purine biosynthesis could be demonstrated. The synergism obsd. in this cell line is presently viewed as potentially due to both agents acting on IMP dehydrogenase at different sites.

L6 ANSWER 28 OF 35 MEDLINE DUPLICATE 17
ACCESSION NUMBER: 83126654 MEDLINE
DOCUMENT NUMBER: 83126654
TITLE: **Guanosine** 5'-monophosphate **reductase** from Leishmania donovani. A

possible chemotherapeutic target.
AUTHOR: Spector T; Jones T E
SOURCE: BIOCHEMICAL PHARMACOLOGY, (1982 Dec 1) 31 (23) 3891-7.
Journal code: 9Z4. ISSN: 0006-2952.
PUB. COUNTRY: ENGLAND: United Kingdom
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 198305
AB **GMP reductase** was highly purified from promastigotes of Leishmania donovani by chromatography on a single DEAE-cellulose column. Bimodal substrate saturation curves resulted in a 1/v versus 1/[GMP] plot that curved downward above 40 microM GMP. The kinetic constants were, therefore, obtained with GMP below this concentration. The K'm for GMP was 21 microM at pH 6.9. The enzyme was very sensitive to activation by GTP. At 20 microM GMP, a maximum of 600% activation occurred at 100 microM GTP. Half-maximal activation occurred at 8 microM GTP. GTP at 100 microM did not affect the K'm for GMP but did increase its V'max by 7-fold. Xanthosine monophosphate (XMP) and IMP analogs served equally well as competitive inhibitors versus GMP. The inhibition by the analogs and the activation by GTP were mutually antagonistic processes. The inhibition by the IMP analogs, allopurinol nucleotide and thiopurinol nucleotide is of chemotherapeutic interest because these compounds were shown previously to be produced in Leishmania from the anti-leishmanial agents allopurinol and thiopurinol. These nucleotides were 100- and 20-fold, respectively, more potent inhibitors of **GMP reductase** from L. donovani than of the corresponding enzyme from **human** erythrocytes.

L6 ANSWER 29 OF 35 BIOSIS COPYRIGHT 1998 BIOSIS
ACCESSION NUMBER: 83:21577 BIOSIS
DOCUMENT NUMBER: BR24:21577
TITLE: BIOCHEMICAL BASIS FOR LYMPHOCYTE DYS FUNCTION IN ADENOSINE DEAMINASE AND PURINE NUCLEOSIDE PHOSPHORYLASE DEFICIENCIES.
AUTHOR(S): CARSON D A; WASSON D B; LAKOW E; KAMATANI N
CORPORATE SOURCE: DEP. CLINICAL RES., SCRIPPS CLINIC RES. FOUNDATION, 10666 NORTH TORREY PINES RD., LA JOLLA, CALIF., 92037.
SOURCE: 4TH INTERNATIONAL SYMPOSIUM ON HUMAN PURINE AND PYRIMIDINE METABOLISM, MAASTRICHT, NETHERLANDS, JUNE 13-18, 1982. J CLIN CHEM CLIN BIOCHEM 20 (6). 1982. 355-356. CODEN: JCCBDT ISSN: 0340-076X
DOCUMENT TYPE: Conference
LANGUAGE: English

L6 ANSWER 30 OF 35 MEDLINE DUPLICATE 18
ACCESSION NUMBER: 79150932 MEDLINE
DOCUMENT NUMBER: 79150932
TITLE: Reaction mechanism and specificity of **human GMP reductase**. Substrates, inhibitors, activators, and inactivators.
AUTHOR: Spector T; Jones T E; Miller R L
SOURCE: JOURNAL OF BIOLOGICAL CHEMISTRY, (1979 Apr 10) 254 (7) 2308-15.
Journal code: HIV. ISSN: 0021-9258.
PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 197908

L6 ANSWER 31 OF 35 BIOSIS COPYRIGHT 1998 BIOSIS
ACCESSION NUMBER: 79:65288 BIOSIS
DOCUMENT NUMBER: BR17:5288
TITLE: EFFECTS OF DEOXY RIBO NUCLEOSIDES ON **HUMAN** LYMPHO BLASTOID BONE MARROW DERIVED AND THYMUS DERIVED CELLS A MODEL FOR NUCLEOSIDE PHOSPHORYLASE AND ADENOSINE DEAMINASE DEFICIENCY.
AUTHOR(S): OCHS U H; CHEN S H; OCHS H D; SCOTT C R; WEDGWOOD R J
SOURCE: FED PROC 38 (3 PART 1). 1979 1222 CODEN: FEPRA7

ISSN: 0014-9446
DOCUMENT TYPE: Conference
LANGUAGE: Unavailable

L6 ANSWER 32 OF 35 MEDLINE DUPLICATE 19
ACCESSION NUMBER: 76138617 MEDLINE
DOCUMENT NUMBER: 76138617
TITLE: Erythrocyte adenosine kinase activity in gout.
AUTHOR: Nishizawa T; Nishida Y; Akaoka I
SOURCE: CLINICA CHIMICA ACTA, (1976 Feb 16) 67 (1) 15-20.
Journal code: DCC. ISSN: 0009-8981.
PUB. COUNTRY: Netherlands
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 197607
AB Erythrocyte adenosine kinase (AK) (EC 2.7.1.20) and **guanosine** monophosphate (**GMP**) **reductase** (**EC 1.6.6.8**) were measured in healthy male controls and primary gout subjects. Adenosine kinase activity in 19 controls and 26 gouty subjects was 0.717 +/- 0.176 and 0.615 +/- 0.128 nmol/mg protein/h, respectively. The difference was statistically significant (p less than 0.05). **GMP reductase** activity in 39 controls and 46 gouty subjects was 30.90 +/- 6.28 and 33.43 +/- 7.97 mumol/mg protein/h, respectively, without statistically significant difference.

L6 ANSWER 33 OF 35 EMBASE COPYRIGHT 1998 ELSEVIER SCI. B.V.
ACCESSION NUMBER: 74168151 EMBASE
TITLE: **Guanosine** 5' phosphate **reductase** of **human** erythrocytes.
AUTHOR: Mackenzie J.J.; Sorensen L.B.
CORPORATE SOURCE: Dept. Med., Univ. Chicago Pritzker Sch. Med., Chicago, Ill. 60637, United States
SOURCE: BIOCHIM.BIOPHYS.ACTA, (1974) 327/2 (282-294).
CODEN: BBACAQ
LANGUAGE: English
AB **Human GMP reductase** [NADPH: GMP oxidoreductase (deaminating), **EC 1.6.6.8**] was purified from erythrocytes with a yield of 15% and a 1200 fold increase in specific activity. The apparent K(m) for NADPH and GMP is 8.5x10-6 M and 4.9x10-6 M, respectively. 1 molecule of IMP is formed for every molecule of NADPH oxidized to NADP+. The purified enzyme exhibits a rather sharp maximum of activity around pH 7.5 and is relatively thermostable, losing only 40% of its activity after heating at 67.degree.C for 15 min. A sulfhydryl donor is not an absolute requirement for the enzymatic reaction. However, activity was decreased to 50% of normal when a sulfhydryl compound was omitted from the reaction mixture. XMP is a potent inhibitor of **GMP reductase**. The inhibition by XMP is competitive for GMP binding by the enzyme with a K(i)= 1.1x10-6 M. The enzyme was also inhibited by all divalent metal ions tested.

L6 ANSWER 34 OF 35 MEDLINE DUPLICATE 20
ACCESSION NUMBER: 74102227 MEDLINE
DOCUMENT NUMBER: 74102227
TITLE: **Guanosine** 5'-phosphate **reductase** of **human** erythrocytes.
AUTHOR: Mackenzie J J; Sorensen L B
SOURCE: BIOCHIMICA ET BIOPHYSICA ACTA, (1973 Dec 19) 327 (2) 282-94.
Journal code: A0W. ISSN: 0006-3002.
PUB. COUNTRY: Netherlands
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 197406

L6 ANSWER 35 OF 35 SCISEARCH COPYRIGHT 1998 ISI (R)
ACCESSION NUMBER: 74:49177 SCISEARCH
THE GENUINE ARTICLE: S0463
TITLE: **GUANOSINE** 5'-PHOSPHATE **REDUCTASE** OF **HUMAN** ERYTHROCYTES
AUTHOR: MACKENZI.JJ (Reprint); SORENSEN L B

CORPORATE SOURCE: UNIV CHICAGO, PRITZKER SCH MED, DEPT MED, CHICAGO, IL, 60637; MCLEAN MEM RES INST, CHICAGO, IL, 60637; ATOM ENERGY COMM, CHICAGO, IL, 60637
COUNTRY OF AUTHOR: USA
SOURCE: BIOCHIMICA ET BIOPHYSICA ACTA, (1973) Vol. 327, No. 2, pp. 282-294.
DOCUMENT TYPE: Article; Journal
LANGUAGE: ENGLISH
REFERENCE COUNT: 11

APS:

```
=> s gmp reductase or e.c. 1.6.6.8 or ec 1.6.6.8 or guanosine(3w)reductase

          951 GMP
         4408 REDUCTASE
            3 GMP REDUCTASE
              (GMP(W)REDUCTASE)
      1348665 E
      1256447 C
            0 1.6.6.8
            0 E.C. 1.6.6.8
              (E(W)C(W)1.6.6.8)
        11451 EC
            0 1.6.6.8
            0 EC 1.6.6.8
              (EC(W)1.6.6.8)
         1779 GUANOSINE
         4408 REDUCTASE
            3 GUANOSINE(3W)REDUCTASE
L1          5 GMP REDUCTASE OR E.C. 1.6.6.8 OR EC 1.6.6.8 OR GUANOSINE(3W
)RE
              DUCTASE

=> s l1 and human

       165708 HUMAN
L2          1 L1 AND HUMAN

=> d ti ab


US PAT NO:      5,756,332 [IMAGE AVAILABLE]             L2: 1 of 1
TITLE:          **Guanosine** monophosphate **reductase**

ABSTRACT:
The present invention provides a **human** **guanosine** monophosphate
**reductase** (HGMPR) and polynucleotides which identify and encode
HGMPR. The invention also provides genetically engineered expression
vectors and host cells comprising the nucleic acid sequences encoding
HGMPR and a method for producing HGMPR. The invention also provides for
agonists, antibodies, or antagonists specifically binding HGMPR, and
their use, in the prevention and treatment of diseases associated with
expression of HGMPR. Additionally, the invention provides for the use of
antisense molecules to polynucleotides encoding HGMPR for the treatment
of diseases associated with the expression of HGMPR. The invention also
provides diagnostic assays which utilize the polynucleotide, or fragments
or the complement thereof, and antibodies specifically binding HGMPR.

=> s l1 not l2

L3          4 L1 NOT L2

=> d ti ab


US PAT NO:      5,334,510 [IMAGE AVAILABLE]             L3: 1 of 4
TITLE:          Process for producing riboflavin by fermentation

ABSTRACT:
The present invention provides a process for producing riboflavin by
fermentation, a method for providing microorganisms having an improved
riboflavin-producing capability, and strains of microorganisms having
improved riboflavin-producing ability. The strains of the present
invention belong to the genus Bacillus, have reduced activity of
hydrolysing phosphoric acid from 5'-guanylic acid, and have the ability
of producing riboflavin. Mutants used in the processes of this invention
have an improved ability of producing riboflavin and are capable of
producing or accumulating a large amount of riboflavin in the culture
medium. The processes of this invention are therefore suitable for
producing riboflavin in an effective manner at a low cost.

=> d ti ab 2-3
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US PAT NO: 4,749,650 [IMAGE AVAILABLE] L3: 2 of 4
TITLE: Bacillus containing a 5'inosinate dehydrocenase gene

ABSTRACT:
A DNA having a 5'-inosinate dehydrogenase gene and further having a Hind III cleavage site 2.9 kilo base pairs can be produced from the chromosomal DNA of a guanosine and/or xanthosine-producing strain of the genus Bacillus. A vector with the DNA obtained above is used to transform Bacillus strain capable of producing guanosine, and the transformed Bacillus strain is useful to increase the guanosine productivity as compared with the case in which a strain before transformantion is used.

US PAT NO: 4,701,413 [IMAGE AVAILABLE] L3: 3 of 4
TITLE: Method of producing inosine and/or guanosine

ABSTRACT:
Method of producing inosine and/or guanosine by culturing an inosine and/or guanosine-producing mutant of the genus Bacillus which requires adenine for growth and is resistant to an antifolate. Thus, inosine and/or guanosine can be produced in much greater yields, compared with known methods.

=> d 4 ti ab

US PAT NO: 3,922,193 [IMAGE AVAILABLE] L3: 4 of 4
TITLE: Method of producing guanosine-5'-monophosphate

ABSTRACT:
Inosine and hypoxanthine are converted in the presence of phosphate ions to 5'-guanylic acid in good yield in culture media of an artificially induced mutant of Corynebacterium sp. ATCC 21251 which lacks **guanosine**-5'-monophosphate **reductase**.

=> s inosin reductase

```
             4 INOSIN
          4408 REDUCTASE
L4           0 INOSIN REDUCTASE
                 (INOSIN(W)REDUCTASE)
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=> s inosine reductase

```
          1384 INOSINE
          4408 REDUCTASE
L5           0 INOSINE REDUCTASE
                 (INOSINE(W)REDUCTASE)
```

=> s inosine(3w)reductase

```
          1384 INOSINE
          4408 REDUCTASE
L6           0 INOSINE(3W)REDUCTASE
```

=> s inosine(10w)reductase

```
          1384 INOSINE
          4408 REDUCTASE
L7           0 INOSINE(10W)REDUCTASE
```